BUNN® TECHNICAL TRAINING

ICB

BUNN

Index

Unit 1: Installation

- Site Requirements 4
- Location of the Serial Number 5
- Water Supply Install 5
- Electrical Install 5
- Initial Start-Up 6

Unit 2: Setup

- Setup and Programming 8
  - Programming Lockout 8
- Level 1 Programming 8
- Level 2 Programming 9
- Level 3 Programming 10
- Uploading a Recipe Using a Recipe Card 11
- Calibrating the Sprayhead Flow Rate 11
- Calibrating the Dilution Flow Rate 12
- Factory Default Values 12

Unit 3: Machine Composition

- Exterior Overview 14
  - Product Outlets and Removable Parts 14
  - User Interface 14
- Accessing the Inside of the Brewer 15
- Machine Function and Operations 15
  - Control Board Assembly 15
  - Filling System 15
  - Heating System 15
  - Dispensing System 16
  - Hot Water 17

Unit 4: Preventive Maintenance

- Preventive Maintenance 19
- Draining the Tank 19
- PM Steps 19

Unit 5: Troubleshooting

- Service Tools 22
  - Test Outputs 22
  - Test Switches 23
  - Test Frequency 23
- Service Fault Messages 23
- Triac Maps 24

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Unit Objectives

Given a realistic scenario depicting a new site install, the learner will be able to install and setup the brewer for retail turnover without error.

Given a new machine, all the necessary tools and safety equipment, the learner will be able to install the brewer without error.

The learner will be able to verify that the site requirements have been met.
The learner will be able to locate and document the serial number.
The learner will be able to hook up the water supply.
The learner will be able to hook up the electrical supply.

Installation

Site Requirements

Space
ICB • Height clearance of 26” (35” ICB Tall) [66cm, 89cm ICB Tall] • Footprint able to accommodate 20” D x 11” W [51cm x 28cm] • Installation surface able to support 72lbs. (operating weight of the brewer) [33kg] • Level installation surface, brewer level on the surface **ICB Twin** • Height clearance of 26” (35” ICB-Twin Tall) [66cm, 89cm ICB-Twin Tall] • Footprint able to accommodate 21” D x 21” W [54cm x 54cm] • Installation surface able to support 122lbs. (operating weight of the brewer) [55kg] • Level installation surface, brewer level on the surface

Water Treatment
• Sediment filtration to reduce large particles • Taste and odor filter to remove chlorine • Scale filtration as needed • For best results a BUNN Easy Clear® filtration system should be used

Plumbing
• .75-11.5 NH (3/4” hose thread) fitting (3/8” flare adapter included) • Dedicated water supply with shut-off • Connected to the cold water supply • Water pressure 20-90psi [138-621kPa] • Minimum water flow of 1.0 GPM **(ICB)** • Minimum water flow of 1.5 GPM **(ICB-Twin)**

Electrical (ICB)
The ICB is available configured either for 120VAC or 240VAC or as a Dual Voltage machine. Verify the electrical specifications of the unit and the location prior to installation. **Electrical - 120VAC** • 120VAC • 2-wire plus ground (L1, neutral, ground) • 15 amp dedicated circuit (breaker, plug, and receptacle) • Receptacle within 3-6 feet of the machine [1-2 meters] • Power cord supplied with the machine **Electrical - 208VAC or 240VAC** • 120/208VAC or 120/240VAC • 3-wire plus ground (L1, L2, neutral, ground) • 20 amp dedicated circuit (breaker, plug, and receptacle) • Receptacle within 3-6 feet of the machine [1-2 meters] • Power cord is not supplied with the machine

Electrical (ICB Twin)
The ICB-Twin is available configured either for 208VAC or 240VAC. Verify the electrical specifications of the unit and the location prior to installation. • 120-208VAC or 120-240VAC • 3-wire plus ground (L1, L2, neutral, ground) • 30 amp dedicated circuit (breaker, plug, and receptacle) • Receptacle within 3-6 feet of the machine [1-2 meters] • Power cord supplied with the machine

Location of the Serial Number

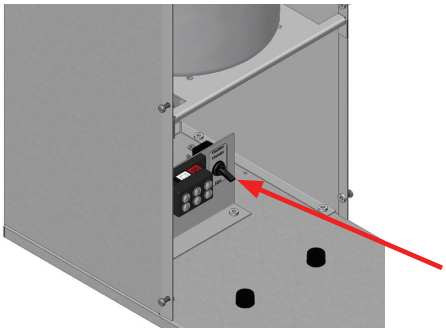
The machine's serial number is located on the data plate which is adhered to the front panel. The complete serial number will need to be documented on all work orders and warranty tags.

Water Supply Install

Step 1: Remove the shipping cap from the fitting on the rear of the brewer.
Step 2: Install the .75-11.5 NH to 3/8" flare adapter on the rear of the brewer, be sure to use the included rubber washer.
Step 3: Flush the water line.
Step 4: Attach the water line to the 3/8" flare fitting on the back of the machine.
Step 5: Turn on the water supply.

Electrical Install

An electrician must provide electrical service as specified in conformance with all local, state, and federal electrical codes.



ICB

The ICB is available as a dual voltage unit. There is a voltage switch located on the front of the brewer behind the front panel. A dual voltage unit will be factory wired with a 2-wire+ground power cord and plug rated for 120VAC at 15amps. For 208 or 240V configurations, the 3-wire+ground power cord must be ordered from BUNN P/N: 01699.0000. The technician must supply a 20amp rated, 4-wire plug.

For 120VAC Brewers:

Step 1: Plug brewer into the power source.

For 120/208VAC or 120/240VAC brewers:

Step 1: Remove the front panel of the brewer.
Step 2: Disconnect the 2-wire+ground cord from the terminal block.
Step 3: Feed the 3-wire+ground power cord through the strain relief.
Step 4: Attach the wire ends to the terminal block.
Step 5: Attach the ground wire to connector below the terminal block.
Step 6: Check that all connections are tight.
Step 7: Place the dual voltage toggle switch in the correct position.
Step 8: Tighten the strain relief and replace the front panel.
Step 9: Plug the unit into the power source.

ICB-Twin

The ICB-Twin is available configured for either 120-208VAC or 120-240VAC. Verify that the electrical specifications of the brewer and the electrical availability of the location match prior to installation. The ICB-Twin is supplied with the power cord installed. The technician will need to provide the required 30amp cord cap.

Step 1: Install the cord cap on the power cord.
Step 2: Plug brewer into the power source.

Initial Start-Up

Step 1: Press the Enable Brew On/Off switch to start the fill process

When the machine is turned on, it will begin to fill the tank.

PLEASE WAIT
TANK FILLING

After the tank fills the machine will automatically begin the heating cycle. This will take approximately 20 minutes.

HEATING
WATER TEMP XXXXº

Once the water temperature has reached the programmed Brew Lockout temperature it will display the ready screen. The machine will continue to heat until it reaches its programmed shut-off temperature.

READY TO BREW
WATER TEMP: 205º

Unit Objectives

Given a realistic scenario depicting a new site install, the learner will be able to install and setup the brewer for retail turnover without error.

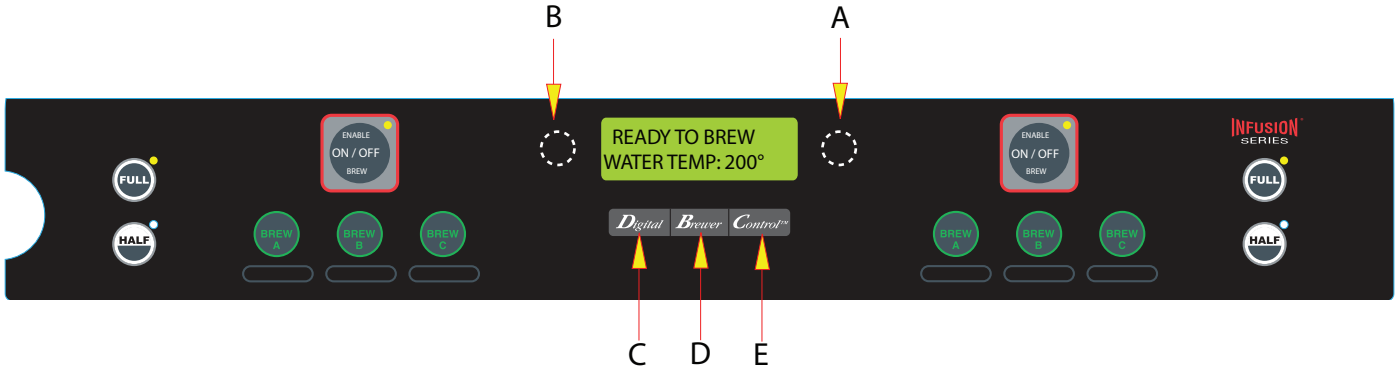
Given an installed machine, all the necessary tools and safety equipment, the learner will be able to set the machine up for initial operation.

The learner will be able to power on the machine.
The learner will be able to access and scroll through the programming options.
The learner will be able to perform the calibrations.

Setup and Programming

Accessing and using the brewer's programming features is done from the front panel and requires no special tools.

The programming menu is accessed through a hidden switch located on the right side of the display. The hidden switch on the left side will allow you to scroll backwards.



A. Right Hidden Switch**:** This is used to access the programming mode and is also used to scroll forward through the function list.

B. Left Hidden Switch: This is used to scroll backwards through the function list.

C. Digital: This is used to select options (NO/-) that appear on the display during programming.

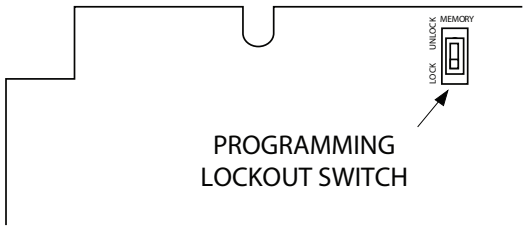
D. Brewer: This is used to select options (DONE) that appear on the display during programming.

E. Control: This is used to select options (YES/+) that appear on the display during programming.

To exit the programming mode at any time, press and release the Enable Brew ON/OFF button located on the user interface. The display will return to the main screen.

Programming Lockout

If the programming cannot be access then the programming lockout switch is in the Lock position. The switch is located on the control board. Remove the top panel, locate the switch and place it into the Unlock position.



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Note: The programming lockout switch will be located on the separate memory module board prior to S/N ICB001330 and located on the main circuit board S/N ICB001330 and after.

Level 1 Programming

Press the hidden switch for one second to access.

BREW LOCKOUT ?
NO DONE YES

This function allows the operator to prevent or allow brewing if the water temperature is less than the Set Ready temperature.

Level 2 Programming

Press and hold the hidden switch for 5 seconds

Set Language? **NO YES**	This function allows the operator to select the language used for the display.
UNITS **Metric DONE ENG**	This function allows the operator to select if numeric settings are displayed in English or Metric units.
REVIEW RECIPES ? **NO YES**	This function allows the operator to view the brew settings for the carious coffee recipes stored into the brewer. It also allows the operator to modify any of the brew settings for a particular recipe stored in the brewer.
ASSIGN RECIPE ? **NO YES**	This function allows the operator to assign a recipe to (or disable) each of the 3 brew switches (A, B, C). Any saved recipes listed under “Review Recipes” can be assigned to a brew switch. Only one recipe per brew switch is allowed.
SET NEW RECIPE ? **NO YES**	This function allows the operator to set Brew Volumes, Bypass %, Pulse Brew/Pre-infusion Times and Drip Out Times for each coffee name stored in the grinder’s memory.
SET TEMP 200° **(-) DONE (+)**	This function allows the operator to adjust the brew water temperature in the tank. This also sets the hot water faucet dispense temperature.
READY DEGREE 5° **(-) DONE (+)**	This function allows the operator to set the minimum temperature allowable to start a brew cycle. The range can be from 2° to 20° F below the set temperature. The water must be at the Ready temperature or higher for the display to indicate Ready To Brew. If brew lockout is enabled, the brewing process won’t start below this Ready temperature.
ENABLE ADS ? **NO DONE YES**	This function allows the operator to choose whether or not to display an advertising message. An ad can be saved to the brewer by either writing the ad using the programming commands, or by entering the ad into the brewer using an Ad Card. This message will be displayed when the brewer is not in use.
ENABLE SANITATION **NO DONE YES**	This function allows the operator to enable the sanitation function and set the time before a cleaning alert will be displayed.
ENABL ENERGYSAVR **NO DONE YES**	This function allows the operator to enable the Energy Savings mode function and set the idle time. Once the set idle time has expired, the operator can choose to have the heaters either turn off, or reduce the tank holding temp to 140° F (60° C).
ENABLE FRESH TIMER **NO DONE YES**	This function allows the operator to enable the Freshness Alert and set the expiration time. The expiration time is the amount of time the product is allowed to sit in the server/dispenser before a fresh batch is brewed.

XX REFILL XXX (-) DONE (+)	This function allows the operator to adjust the sensitivity of the refill circuit. This is mainly a troubleshooting feature. Water in different geographical locations can have different conductivities. By adjusting the sensitivity of the refill circuit, this will allow the brewer to operate under various water conditions.
SPRAY OZ/M: XX.X (-) DONE (+)	This function allows the operator to view or enter the actual flow rate coming out of each sprayhead. This is Not used to control the actual flow rate, but to tell the internal processor how fast the water is flowing.
BYPASS OZ/M: XX.X (-) DONE (+)	This function allows the operator to view or to enter the actual flow rate coming out of the bypass. This is not used to control the actual flow rate, but to tell the internal processor how fast the water is flowing.
CALIBRATE FLOW? NO YES	This function allows the operator to test and enter the actual flow rate of the sprayhead(s) and the bypass/dilution for each side of the brewer by dispensing each separately for one minute. The volumes are then entered into the brewer.
BREW COUNTERS? NO YES	This function allows the operator to track the total number of brew cycles completed, as well as the number of batches brewed using each of the brew buttons. There are (up to) three resettable counters, and one life counter that is not resettable.
ENTER ASSET # NO YES	This function allows the operator to enter the machine's asset number. This can be useful for tracking the usage or service of an individual machine within a group.
ENTER SERVICE # NO YES	This function allows the operator to enter in the telephone number to call if service is needed. The service number will be displayed anytime there is a fault message displayed.
SERVICE TOOLS NO YES	(For Authorized Service Personel Only) This function allows the testing of individual components and the ability to check switches for proper function. This function also tests the funnel sensor coil's frequency (diagnostic tool for troubleshooting purposes only). Refer to Service Manual for in depth procedures.
FACTORY DEFAULTS NO YES	This function allows the operator to erase **all** of the previously entered recipes and ad messages. Factory-set default values will replace All previous settings.

Level 3 Programming

Press and hold the hidden switch for 10 seconds.
Insert a digital thermometer probe into the water tank and wait for the temperature reading to stabilize.

200° CAL→ 200° (-) DONE (+)

Uploading a Recipe Using a Recipe Card

The recipe card includes all the information needed to set up that particular tea/coffee name. The information from the recipe card is loaded into the brewer's memory by holding the chip area up to the brewer's sensing coil. This information can include all the recipe settings for that particular name. These can all be loaded in seconds.

Note: Instructions to program the brewer are printed on the recipe card, along with the tea or coffee name that is being programmed.

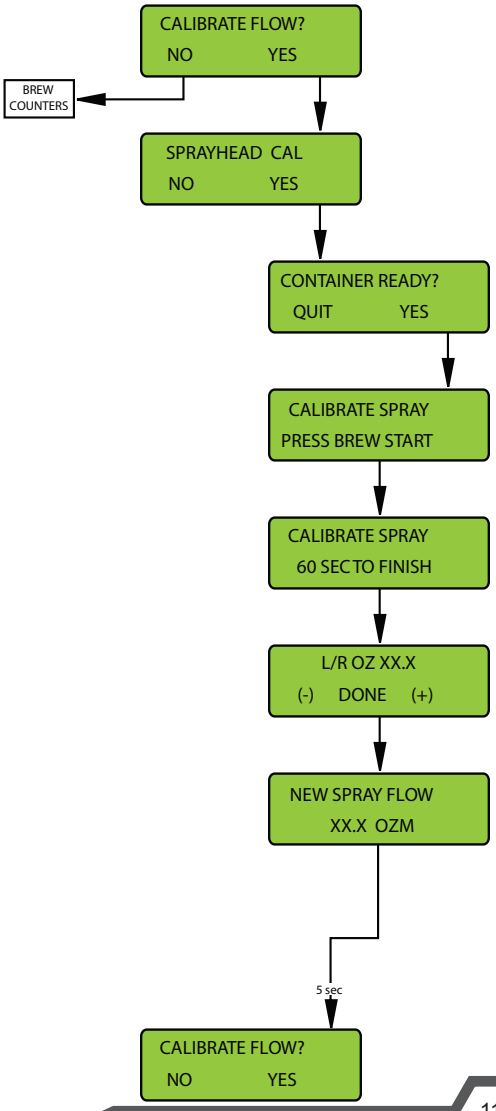
Procedure to program the coffee name:

Step 1: Remove the funnel.
Step 2: Position the recipe card vertically, so that the top end of the chip is beneath the sensing coil (located on the under side of the front panel).
Step 3: After a short pause the display will read CARD CONTAINS RECIPE FOR then will change to (RECIPE NAME) SHOW-QUIT-SAVE. All brewing parameters for that recipe are now transferred from the CARD to the brewer.
Step 4: To show (view) this information, press and release SHOW. The display will scroll through all of the brew settings for that recipe. This display will then return to CARD CONTAINS RECIPE FOR then will change to (RECIPE NAME) SHOW-QUIT-SAVE.
Step 5: If all brew settings are correct, press SAVE. The display will read (RECIPE NAME) SETUP COMPLETE. All brew settings for that name are now stored in the brewer's memory.
Step 6: If the brewing information is not correct, or it is desired to exit the setup before the settings are loaded into the brewer's memory, press QUIT. The display will read (RECIPE NAME) NOT SAVED. The display will then return to the main screen.

Note: The recipe is now saved in the brewer's memory. To brew using this recipe, it must be assigned to a brew button.

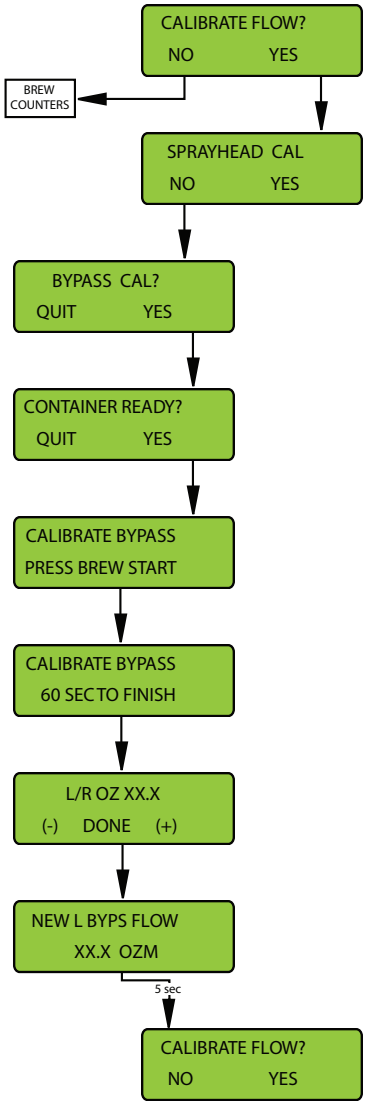
Calibrating the Sprayhead Flow Rate

Step 1: Place a measuring container with a minimum capacity of 60 ounces beneath the funnel of the brewer. Water can also be dispensed into the server and then into the measuring container.
Step 2: Press and hold the right hidden switch to enter level 2 programming. Continue
to press the right hidden switch until the display reads CALIBRATE FLOW ?.
Step 3: Press YES to advance to the SPRAY HEAD CAL? function screen.
Step 4: Press YES. The display will read CONTAINER READY? If the container is under the funnel, press YES. The display will read CALIBRATE SPRAY…PRESS BREW TO START.
Step 5: Press and release the BREW switch (on the side to be calibrated for DUAL brewers). The display will read CALIBRATE SPRAY…60 SEC TO FINISH. The 60 second timer on the display will count down to zero. When the counter reaches zero, the display will change to OZ, along with the existing ounces per minute.
Step 6: Measure the amount of water in the container and using the (-) or (+), adjust the amount on the
display to match the amount in the container. Then press DONE.
Step 7: The display should now read: NEW SPRAY FLOW along with the correct flow rate of the sprayhead in ounces per minute. After 5 seconds, the display will return to the CALIBRATE FLOW screen.



Calibrating the Bypass Flow Rate

Step 1: Place the measuring container with a minimum capacity of 60 ounces beneath the funnel of the brewer. Water can also be dispensed into the server and then into the measuring container.
Step 2: Press and hold the right hidden switch to enter level 2 programming. Continue to press the right hidden switch until the display reads CALIBRATE FLOW ?.
Step 3: Press and release YES to advance to the SPRAYHEAD CAL? function screen.
Step 4: Press and release NO to advance to the BYPASS CALIBRATION screen.
Step 5: Press YES. The display will read CONTAINER READY? If the container is under the funnel, press YES. The display should read CALIBRATE BYPASS .. PRESS BREW TO START.
Step 6: Press and release the BREW switch. The display will read CALIBRATE BYPASS...60 SEC TO FINISH. The 60 second timer on the display will count down to zero. When the counter reaches zero, the display will change to BYPASS OZ/M, along with the existing ounces per minute.
Step 7: Measure the amount of water in the container and using the (-) or (+), adjust the amount on the
display to match the amount in the container. Then press DONE.
Step 8: The display should now read: NEW BYPASS FLOW, along with the correct flow rate of the bypass in ounces per minute. After about 5 seconds, the display will return to the CALIBRATE FLOW screen



Factory Default Values

Brew Lockout	Disabled
Set Language	English
Units	English
Set Temp	200ºF/ 93ºC
Ready Degree	5ºF/2ºC
Enable Ads	Disabled
Enable Sanitation	Disabled
Enable EnergySavr	Disabled
Enable Fresh timer	Disabled
Refill	155
Spray Oz.	36oz./ 1065mL
Bypass Oz.	30oz./ 887mL

UNIT 3 MACHINE COMPOSITION

Unit Objectives

Given a realistic scenario in which the learner has access to the machine's internal components the learner will understand the composition and functions of the brewer.

Given a realistic scenario requiring the learner to access the internal components of the machine the learner will be able to remove rear panel and top panel.

The learner will remove the rear panel and top panel.

Given an operating machine the learner will be able to give a general explanation of how the unit operates.

The learner will be able to identify the functions of the main control board .
The learner will be able to identify the components and functions of the filling system.
The learner will be able to identify the components and functions of the heating system.
The learner will be able to identify the components and functions of the dispensing system.
The learner will be able to identify the components and functions of the dilution system.

Machine Composition

Exterior Overview

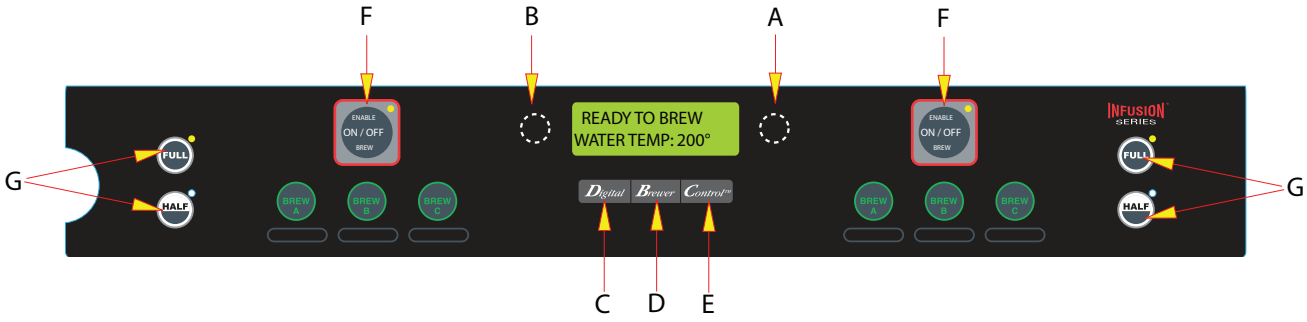
Product Outlets and Removable Parts

- *User interface (A)*
- *Display (B)*
- *Enable Brew On/Off (C)*
- *Brew Funnel (D)*
- *Hot water outlet (E)*
- *Sprayhead (F)*

User Interface

The user interface is a membrane switch adhered to the front of the brewer. The membrane is connected to the control board assembly by a ribbon cable. The user interface allows the user to select the product, batch size and to begin the brew cycle. The user interface and display are 5VDC components.

The machine's display is mounted to the control board assembly. The display is visible on the front of the machine and provides information to the user and to the technician.



A. Programming (right)
Pressing and holding this pad allows entry into the programming menus. Pressing and releasing the pad steps through each function screen while in the programming mode.

B. Programming (left)
This hidden pad can be used to scroll backwards through the function list while in programming mode.

C, D, E. Brew (A, B, C) and Function
When the ON/OFF is ON and the brewer is on the main screen (not in programming mode), momentarily pressing and releasing this pad will begin a brew cycle. These are also used to program the brewer when in the programming mode.

F. On/Off Switch
Pressing the "ON/OFF" pad will alternately turn the brewer on and off. Pressing this pad during the brew cycle will interrupt the brew cycle, stopping the flow of water. Pressing this pad during programming of the brewer will exit the setup and return to the main screen.

G. Batch Selector Pads
Pressing the pad corresponding to the Half or Full batch selects the amount of product to be brewed. Pressing a different pad after a brew cycle has been initiated does not change the brew batch in progress. Light indicates the selected batch to brew. Also used in programming to adjust settings on both batch sizes.

Accessing the Inside of the Brewer

The majority of service work to the ICB brewer will require the removal of either the front panel or the top panel. The top panel of the Single is secured with 1 flathead screw, the top panel of the Twin has two screws. The front panel is secured with either 6 or 8 flathead screws, depending on the height of the machine.

Machine Function and Operations

Control Board Assembly (CBA)

The CBA is the brain of the brewer. In the Digital Brewer Control (DBC®) system, the CBA is the single component that contains all of the programming software, it interprets all the data it receives from the level and temperature sensors and activates components to fulfill those demands. The CBA responds to the users input through the membrane switch and activates and controls the brew cycle. The control board can receive data from Smart Funnels® through a sensing coil on the front of the machine.

In a digital coffee brewer the CBA takes the place of the liquid level control board, the timer board, and the mechanical thermostat. All of these components are combined into a single unit.

Filling System

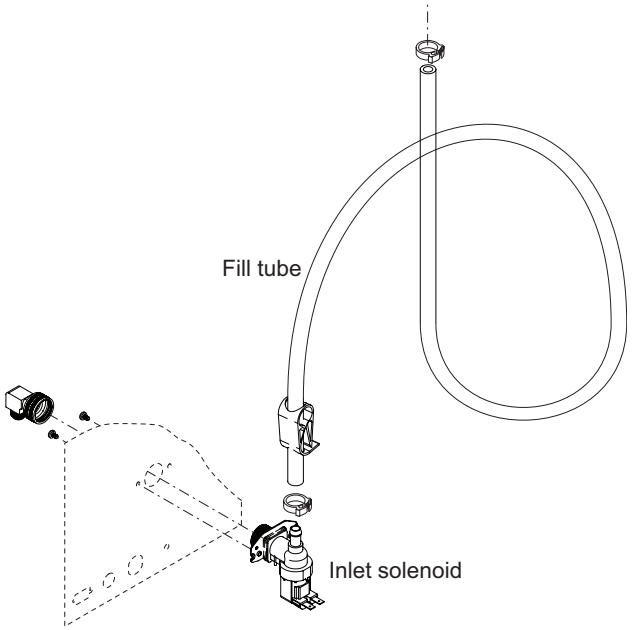
The fill system maintains the level of water in the brewer's tank. Anytime water is drawn off of the tank during a brew cycle or from the hot water outlet, the fill circuit activates to refill the tank.

The fill system consists of:
- 120VAC or 240VAC solenoid inlet valve
- Liquid Level Probe

Water enters the rear of the brewer from the supply line and first goes through a plastic strainer mounted in the combination inlet valve. From the inlet valve the water flows through the fill tubing into the bottom of the water tank.

The inlet valve is activated by the CBA anytime the brewer calls for water. The inlet valve opens and allows water to flow, under line pressure, to the tank where the silicon tube connects to a fill tube attached to the tank.

The CBA monitors the level of water in the tank through a low voltage liquid level probe mounted to the top of the tank. The CBA grounds a 2.5VAC signal to the tank through the water. If it looses this signal, the CBA will activate the inlet valve.



Heating System

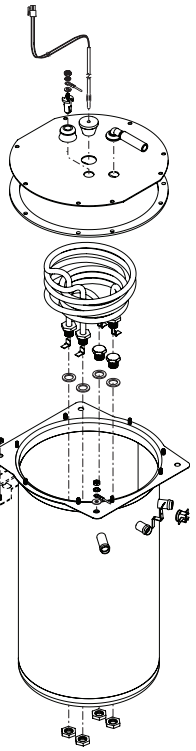
The heating system consists of:
- Water tank
- Tank Heater(s)
- Limit thermostats
- Thermistor

The heating circuit maintains the water in the tank at a preset temperature this ensures that the water is always ready for brewing.

ICB

Water for brewing is contained in a 3 gallon (11.36L) stainless steel tank. This tank contains a 2268W tank heater that is powered by the line voltage into the machine. The tank heater is activated by the CBA. The dual voltage ICB brewer adds an additional 1680W tank heater; the two elements are wired in series.

The CBA monitors the water in the tank by a temperature sensor that is in contact with the water. This temperature sensor is a digital thermistor; the CBA reads the temperature as value of resistance. The thermistor allows the CBA to trigger the tank heater relay when the temperature drops below its programmed value and shut down the trigger voltage when the water temperature reaches the programmed holding value. There is a limit thermostat on the hot leg to the tank heater; if the thermostat temperature rises above 230°F (110°C) it will open to disconnect power from the element. The thermostat will automatically reset once the temperature drops below 170°F (77°C). The thermostat is a mechanical component and is not monitored by the CBA.

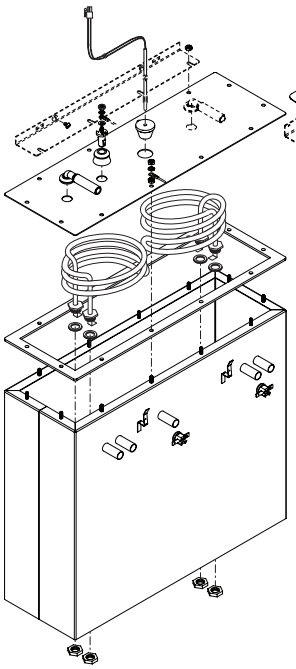


ICB-Single tank

ICB-Twin

Water for brewing is contained in a 5.6 gallon (21.2L) stainless steel tank. This tank contains 2 3000W tank heaters that are powered by the line voltage into the machine. The tank heaters are activated by the control board.

The CBA monitors the water in the tank by a temperature sensor that is in contact with the water. This temperature sensor is a digital thermistor; the CBA reads the temperature as value of resistance. The thermistor allows the CBA to trigger the heating element relay when the temperature drops below its programmed value and shut down the trigger voltage when the water temperature reaches the programmed holding value. There is a limit thermostat for each tank heater; if the thermostat temperature rises above 230°F (110°C) it will open to disconnect power from the tank heater. The thermostat will automatically reset once the temperature drops below 170°F (77°C). The thermostat is a mechanical component and is not monitored by the CBA.

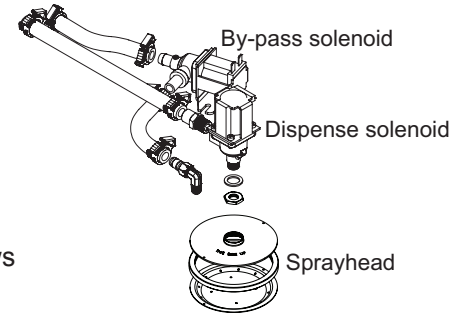


ICB-Twin tank

Dispensing System

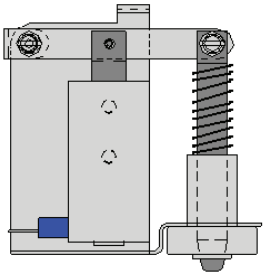
The dispensing system consists of:

- Dispense valve
- By-pass valve
- Sprayhead
- Funnel lock (optional)
- Funnel

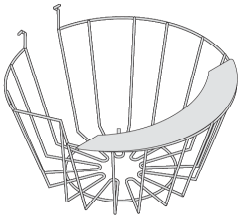


The ICB brewer is a gravity brewing system. This process uses the head pressure in the hot water tank to allow the water to flow from the tank once a valve is opened. For brewing the ICB use two valves; a dispense valve and a by-pass valve. Both valves are activated by the CBA for a set time in order to achieve the desired volume of water or by-pass percentage. The dispense valve(s) are 120VAC in the ICB's and 208/240VAC in the ICB-Twins. The brewing water flows out of the sprayhead on the end of the valve. The sprayhead not only serves to diffuse the water over the product but also serves as the outlet flow control; any sprayhead change will increase or decrease the volume of finished product.

The ICB's may utilize a funnel lock solenoid. This solenoid will drop a pin down in front of the funnel preventing from being removed during the brew cycle and for a programmed "drip-out" time. The funnel lock solenoid is a DC component and is activated by the CBA.

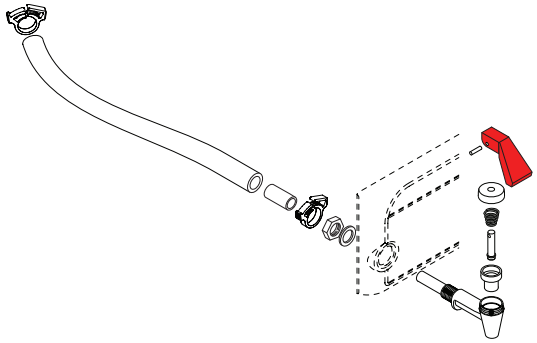


The brew funnel holds the ground coffee and is where the actual brewing process takes place. The wire basket in the funnel has a notch to allow the by-pass water to divert to the bottom of the funnel. The Smart funnel chip in the handle allows a brewer to communicate with a grinder via the funnel. The grinder will upload a recipe onto the funnel; the brewer can then receive that recipe once the funnel is in place.



Hot Water

The ICB can deliver hot water on-demand for allied products. A hot water faucet is connected to the tank and will dispense hot water when the handle is pulled.



UNIT 4 PREVENTIVE MAINTENANCE

Unit Objectives

Given a realistic scenario depicting a machine requiring a preventive maintenance, the learner will be able to identify which elements of a component need to be serviced without error.

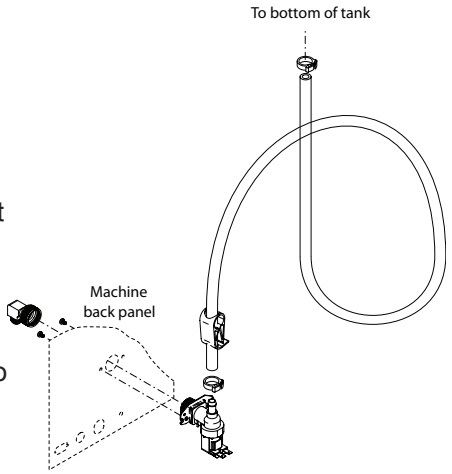
Given a machine, all the necessary tools and safety equipment, the learner will be able to identify the components that need to be serviced for the PM.

Preventative Maintenance

In order to maintain proper operation and long service life BUNN recommends performing the preventative maintenance every 6 months. Individual customers will vary with some customers choosing not to receive preventative maintenance.

Tools Required:
- □ Slotted screwdriver
- □ 11/32 nut driver
- □ 1/4 Nut driver
- □ Slip-Joint Pliers
- □ Needle-nose pliers
- □ Deliming key (BUNN P/N: 38227.0000)

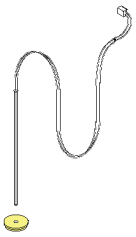
Prior to servicing the brewer:
- □ Disconnect the electrical supply
- □ Shut off the water supply
- □ Remove the top panel
- □ Remove the front panel
- □ Drain the tank (see below)



Draining the Tank
Step 1: Use a slotted screwdriver to remove the 6 or 8 screws securing the front panel onto the chassis, remove the panel
Step 2: Locate the hose clamp on the fill tube, and clamp off the water line
Step 3: Remove the clip securing the bottom end of the fill line to the inlet valve and remove the line from the inlet valve
Step 4: Place the water line over a sink or bucket and remove the hose clamp to allow the tank to drain

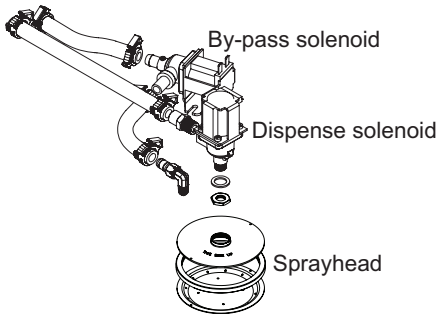
PM Procedures

Step 1: Disassemble and clean the strainer assembly
- □ Use slip-joint pliers to remove the ¼" flare to ¾" hose thread adapter fitting from the water inlet assembly
- □ Use needle-nose pliers to gently pull the strainer straight out
- □ Rinse the mesh screen to remove any debris build-up
- □ Reassembly is the opposite of disassembly



Step 2: Remove and clean the thermistor
- □ Gently pull the thermistor from the grommet in the top of the tank
- □ Wipe any mineral build-up from the probe
- □ Reinstallation is the opposite of removal

Step 3: Remove and clean the liquid level probe
- □ Gently pull the liquid level probe out of the grommet
- □ Wipe any mineral deposits off of the probe
- □ Reinstallation is the opposite of removal



Step 4: Remove and clean the sprayhead(s)
- □ Using the pointed end of the deliming key, remove any mineral build-up from the sprayhead outlet holes

Step 5: Rebuild the dispense valve(s)
- □ Remove the hose clamps that secure the tubing to the valve
- □ Remove the two 11/32 nuts that hold the solenoid bracket to the machine
- □ Gently remove the tubing from the valve body
- □ Using a 1/4 nut driver, remove the four screws and separate the valve assembly
- □ Replace plunger, spring, and rubber seat using the rebuild kit BUNN P/N: 11517.0008
- □ Clean any mineral build-up from the dispense valve
- □ Reassembly is the opposite of disassembly

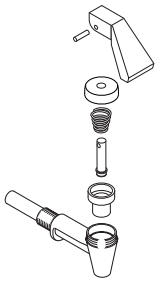
Step 6: Rebuild the bypass valve(s)

- □ Remove the hose clamps that secure the tubing to the valve
- □ Remove the two 11/32 nuts that hold the solenoid bracket to the machine
- □ Gently remove the tubing from the valve body
- □ Using a 1/4 nut driver, remove the four screws and separate the valve assembly
- □ Replace plunger, spring, and rubber seat using the rebuild kit BUNN P/N: 11517.0008
- □ Clean any mineral build-up from the valve
- □ Reassembly is the opposite of disassembly

Step 7: Check the funnel lock solenoid(s) for correct operation

Step 8: Replace the seat cup in the hot water faucet (annually)

- □ Unscrew the faucet bonnet from the assembly
- □ Remove the old faucet seat cup
- □ Install the new seat cup BUNN P/N: 02766.0000
- □ Reassembly is the opposite of disassembly



Step 9: Visually examine the power cord for any damage

Step 10: Visually examine the water supply for any leaks

Step 11: Calibrate sprayhead flow rate and bypass flow rate

Unit Objectives

Given a realistic scenario depicting a broken machine, the learner will be able to effectively troubleshoot, diagnosis, and repair the problem returning the machine to normal operation.

Given a machine displaying an error message, all the necessary tools and safety equipment, the learner will be able to diagnosis the problem.

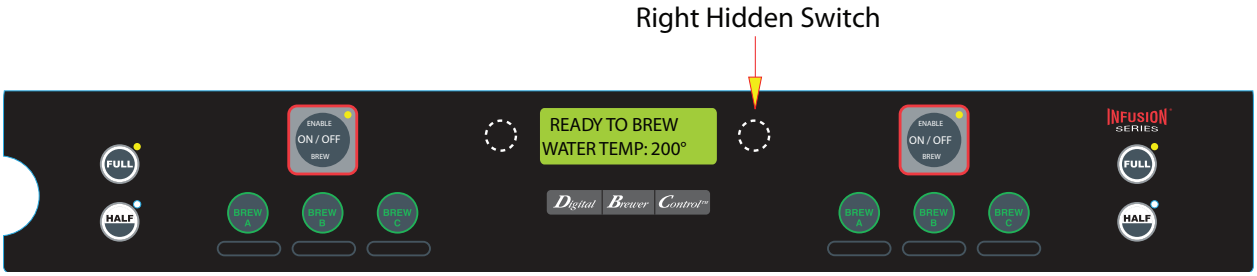
Given a list of error messages and issues, the learner will be to identify the probable cause of the message or issue.

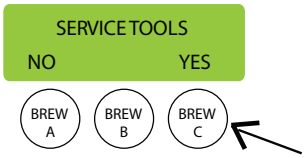
Given a brewer with a defective component, the learner will be able to test the component to deter mine the cause of the defect.

Service Tools

The ICB brewer features on-board troubleshooting. Since all of the machine's components are controlled or activated by the control board you can activate and test components individually from the user interface. This allows you to listen to solenoid valves opening, observing the flow of water or test to see if a component is receiving voltage using a meter.

The Service Tools option is located in Level 2 of the programming. Enter level 2 programming by pressing and holding the right hidden switch for 5 seconds. Use the right hidden switch to scroll to the Service Tools Screen.





Press the Brew C button to select Yes. This will enter the Service Tools feature.

In the Service Tools selection there are 3 screens available, by selecting Yes, you will enter that test function, by selecting NO you will move to the next test.

TEST OUTPUTS?
NO YES

Outputs- Test Outputs supplies voltage to load components in the brewer

TEST SWITCHES?
NO YES

Switches- Tests the inputs from the membrane switch

TEST FREQUENCY?
NO YES

Frequency- Indicates the transmit frequency of the funnel sensing coil

Test Outputs

TEST OUTPUTS?
NO YES

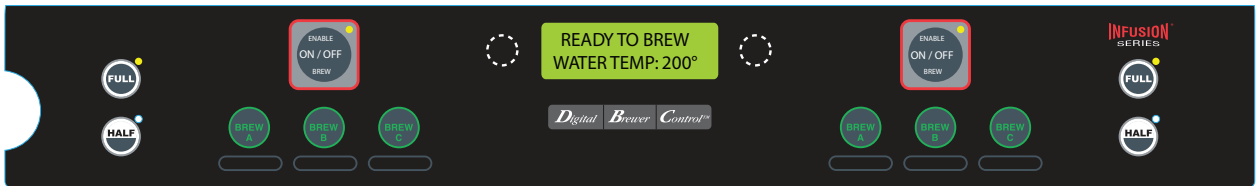
The following components can be tested individually:

- L/R Brew Valve
- L/R Bypass Valve
- Refill Valve
- Tank Heater Relay
- Tank Heater Triac
- L/R Funnel Lock (Optional)

Test Switches

TEST SWITCHES?
NO YES

Press any of the input buttons on the membrane switch, the display will show which button is being pressed.



Test Frequency

TEST FREQUENCY?
NO YES

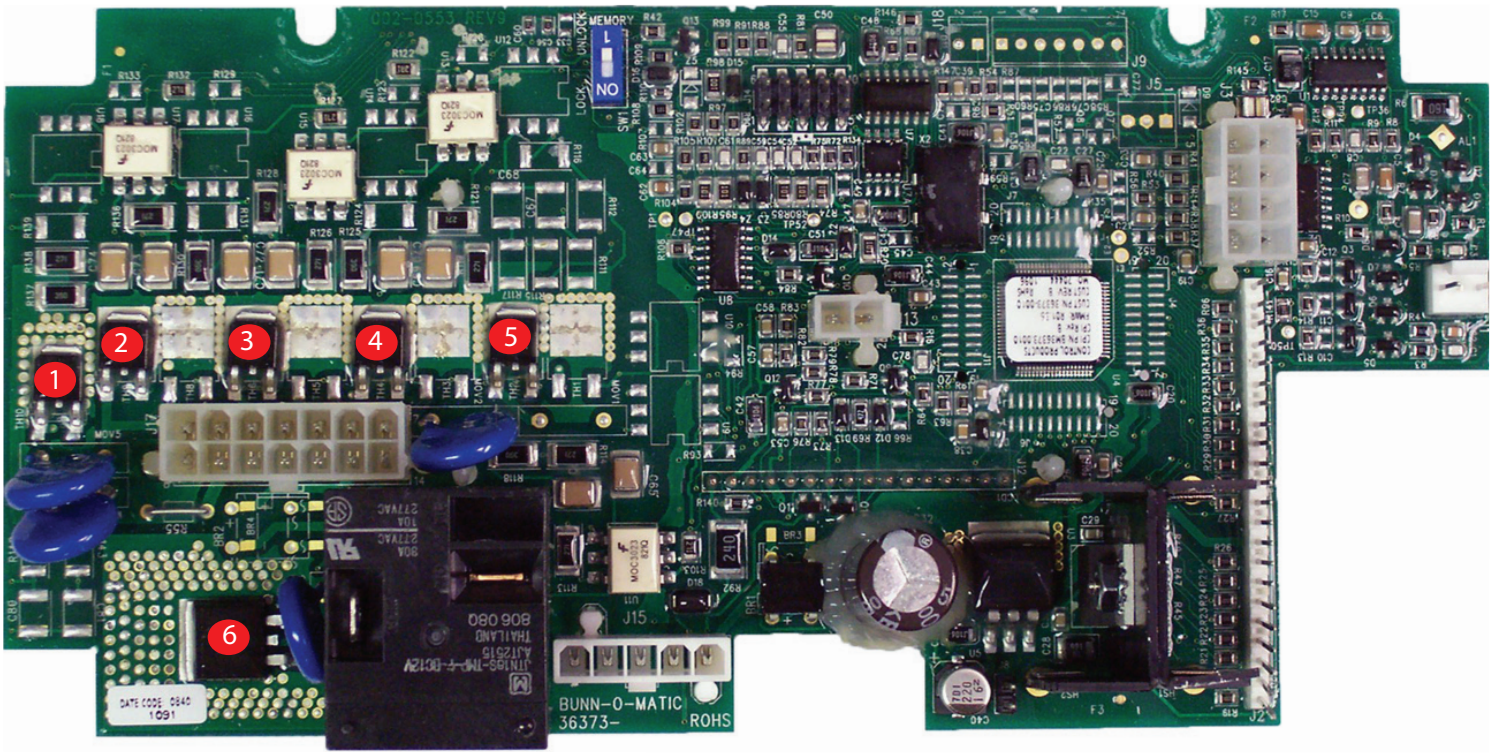
The funnel sensing circuit is tuned to 125 kHz. If the circuit is not tuned correctly, then the funnel information will not be transferred to the brewer. Therefore, the microprocessor is constantly fine tuning to get as close as possible to 125 kHz. It has eight possible tuning steps numbered 0 - 7. When you look at the “TEST FREQUENCY” screen you see something like (124.7 KHZ .5) The 124.7 is the frequency, and the 5 is the tuning step. The decimal point next to the 5 indicates the funnel is being detected; if the funnel is removed the decimal point should turn off.

Service Fault Messages

The brewer features several error messages for problems occurring within the machine. These error messages will show up on the display.

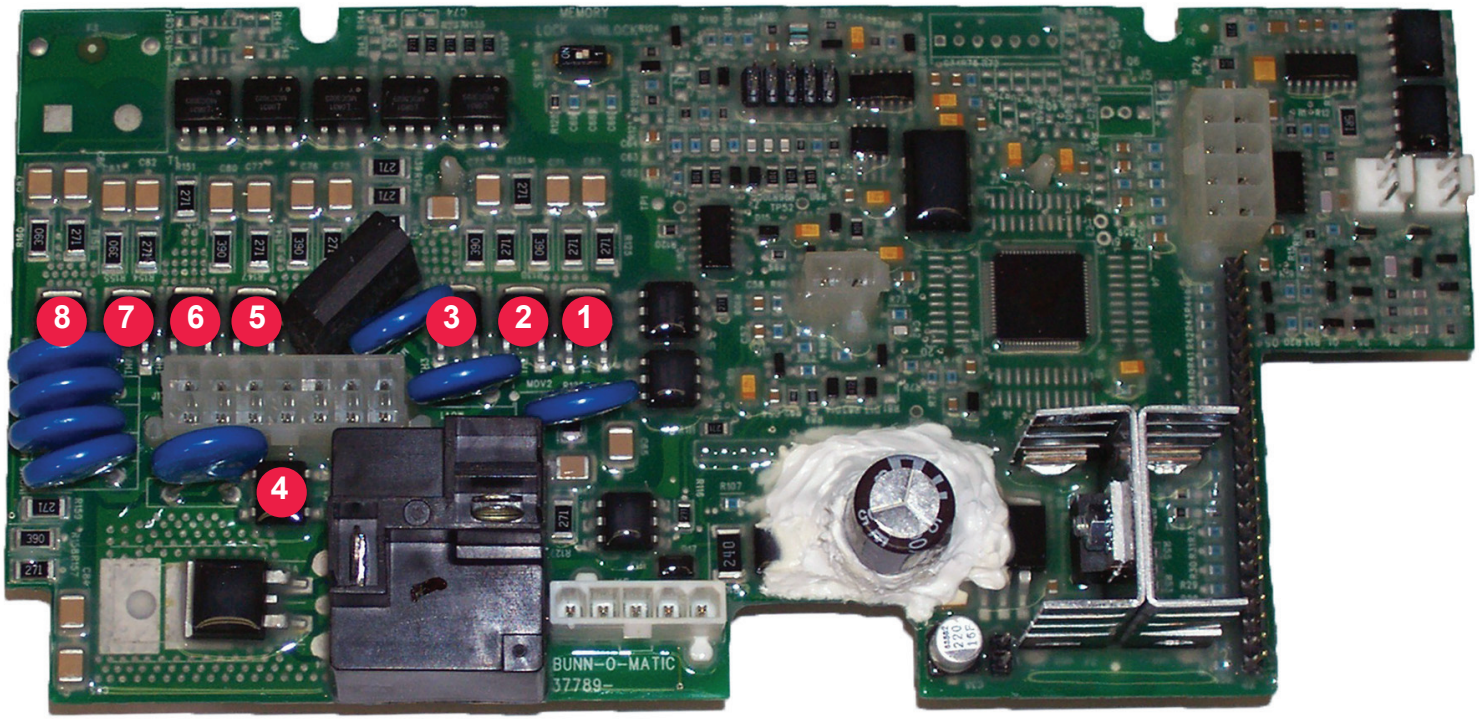
HEATING TIME TOO LONG	This message will be shown if the control board does not see the programmed water temperature with 60 minutes.
FILL TIME TOO LONG	This message will be shown if the control board does not see the tank fill within 30 minutes.
TEMP SENSOR OUT OF RANGE	This message will be shown if the control board looses contact with the temperature sensor or senses a short in the connection.

Triac Map (ICB)



1. TH10 = Sweetener
2. TH9 = Bypass Valve
3. TH6 = Dispense Valve
4. TH4 = Inlet Valve
5. TH2 = Funnel Lock Solenoid
6. TH7 = Heater Triac

Triac Map (ICB Twin)



1. Left Funnel Lock (TH1)
2. Inlet Valve (TH2)
3. Right Funnel Lock (TH3)
4. Heating Circuit (TH4)
5. Left Dispense Valve (TH5)
6. Right Dispense Valve (TH6)
7. Left Bypass Valve (TH7)
8. Right Bypass Valve (TH8)